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AUTHOR Dweck, Carol S.; Henderson, Valanne L.
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ABSTRACT

Research on implicit beliefs or theories about intelligence has shown that those with entity theories tend to be oriented toward performance goals--that is, toward documenting their intelligence, while those with incremental theories tend to be oriented toward learning goals--that is, toward developing their intelligence. This paper discusses measures used to assess individuals' theories, confidence, and goal orientation. Appendices provide: (1) an intelligence belief measure suitable for children 10 years of age and older; (2) three confidence measures: one suitable for children 9-12 years of age, and two suitable for children of 12 years and older; and (3) a goal orientation measure. Concluding remarks express the hope that the measures will prove to be useful to other researchers. (RH)

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Theories of Intelligence: Background and Measures

Carol S. Dweck and Valanne L. Henderson

University of Illinois, Champaign-Urbana

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Correspondence should be addressed to Carol S. Dweck, Department of Psychology, University of Illinois, 603 East Daniel, Champaign, Illinois 61820.

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Our research indicates that people have implicit beliefs or theories about intelligence (M. Bandura & Dweck, 1985; Dweck & Leggett, 1988; Leggett, 1985). One theory, the "entity" theory, holds that intelligence is something about the self that the individual cannot change. In contrast, the "incremental" theory maintains that intelligence is a malleable quality, which can be developed through the individual's efforts.

Our research on the theories of intelligence has shown that people with entity theories tend to be oriented toward "performance" goals, that is, toward documenting their intelligence, whereas people with incremental theories tend to be oriented more toward "learning" goals, that is, toward developing their intelligence (M. Bandura & Dweck, 1985; Dweck & Bempechat 1983; Dweck & Leggett, 1988; Leggett, 1985) (see Table 1).

We have found that children who hold an entity theory of intelligence and performance goals, especially those who have low confidence in their intelligence, are more vulnerable to a learned helpless pattern of behavior in academic problem-solving situations. This means that when these children encounter setbacks or failure, they tend to attribute the failure to a lack of ability to experience negative affect, and to exhibit performance deterioration (M. Bandura & Dweck, 1985; Elliott & Dweck, 1988; cf. Diener & Dweck 1978, 1980). In contrast, children who hold an incremental theory of intelligence and learning goals, regardless of their intellectual confidence, are more likely to show a mastery-oriented behavior pattern. Children with a mastery-oriented pattern do not debilitate in the face of failure, but rather, they maintain their positive affect, increase their efforts and spontaneously develop more sophisticated strategies for problem solving (M. Bandura & Dweck, 1985; Elliott & Dweck, 1988; cf. Diener & Dweck, 1978, 1980).

The Theory of Intelligence Measure

The measures we use to assess individuals' theories, confidence and goal orientation have evolved over time, and we are continuing to refine them. Here we discuss each measure in turn. The measures themselves (indicating the ages of subjects for which they are appropriate and the numerical scoring procedures) are appended. Initially, we used a two-alternative forced-choice format for assessing theories of intelligence (e.g., M. Bandura & Dweck, 1985; Leggett, 1985). We presented subjects with a series of paired statements, one which embodied the entity theory and one which embodied the incremental theory, and asked them to choose the statement that was most true for them. For example:

A. If you aren't as intelligent as you want to be, there isn't much you can do about it. (entity theory)

B. You can become about as intelligent as you want to be. (incremental theory)

(Boyum, unpublished Master's Thesis).

However, we noticed that all subjects showed a tendency to select more and more incremental statements as they worked through the series of paired statements. This indicated to us that the incremental choice is highly compelling, and perhaps, is the more socially desirable choice as well. In an effort to eliminate this response bias, we moved to a new format in which we ask subjects to indicate how much they agree or disagree with a statement that embodies the entity theory.

In the current format, (see attached measure 1) we present three statements embodying the entity theory and ask subjects to indicate on a six-point scale how much they agree with each of these statements. We reasoned that subjects who hold an entity theory would feel free to agree

with the statement, since they were not faced with the compelling incremental choice. However, we felt that subjects who hold an incremental theory would not be compelled by the entity statement, and would indicate their disagreement. Operationally, entity theorists are those subjects whose mean scores across the three statements indicate agreement with them (mean score between 1.0 and 3.0), and incremental theorists are those subjects whose scores reflect disagreement (mean score between 4.0 and 6.0). Our most recent research has shown this to be an effective method of measuring these implicit beliefs, and indeed, we have been obtaining bimodal distributions of theory scores (Henderson, Cain & Dweck, 1987; Henderson & Dweck, 1988). Since it is not clear how to classify someone who both agrees and disagrees with the statements embodying the entity theory, we do not analyze data from subjects whose mean theory scores are between 3.0 and 4.0.

Because much of our research has been with children, who are sensitive to demand characteristics, we take steps to insure that they understand that it is acceptable to disagree with the statements. Thus, we usually include training items which pull for disagreement, such as "Vanilla is the best flavor of ice cream."

The Confidence Measure

Confidence in one's intelligence, as indicated above, is also a factor in predicting mastery-oriented or helpless behavior patterns (M. Bandura & Dweck, 1985; Elliot & Dweck, 1988). We have used two formats to assess confidence, one which works well for individual administration and one that simplifies group administration. In both formats, the subject is given four pairs of statements and is asked for each pair, to choose between the two statements, one representing high confidence and one representing low confidence. After subjects have indicated which of the two statements is

most true for them, we ask them to show us on a three point scale how true that statement is for them, "very true", "true" or "sort of true." In the individual administration format (see measures 2 and 3), the two statements are presented at either end of a six-point scale, which ranges from "very true" through "sort of true" to very true" again. This format can be confusing for younger subjects (who want to make a response to each statement). However, if the experimenter makes it clear that the subject is to endorse only one of the statements, and to make only one mark on the scale, they generally do not have a problem.

The group administration format (see measure 4), presents the two statements first, and the subjects are asked to choose which is most true for them. This forced choice is followed by a single three-point scale. This scale asks the subject to indicate how true the selected statement is, "very true," "true" or "sort of true." This format requires less verbal instruction, but has some drawbacks. It is more difficult to score for data processing, and occasionally, subjects forget to do both the forced choice and the scale.

The Goal Choice Measure

Finally, we use the appended goal choice measure (see measure 5) for determining whether subjects hold a performance goal or a learning goal with respect to a future task. This measure uses a single four-alternative forced-choice item. Note that this is not a "scale," but rather a task-choice assessment in which the different tasks embody different goals. Note also that two of the four choices represent easy (no risk) performance goals. Such choices are low in social desirability; thus two opportunities to select an easy performance goal may make the option appear more chooseable. There is no option that represents an easy learning goal, since

learning and performance goals would be confounded in an item of this nature. That is, such a choice would not indicate a willingness to forego performance concerns in order to learn (Leggett, 1985; Leggett & Dweck, 1986; based on M. Bandura & Dweck, 1985).

The goal choice measure is most effective when it is presented as a choice about real, upcoming tasks--for example, just prior to an intellectual problem-solving task, or regarding some tasks the experimenter might bring for the class in the future. This measure is fairly easy to administer. For example, in an experimental situation, subjects expect to be given some problems to work on, and are asked what sort of problems they would prefer to do. Once they mark their choice, the experimenter places the measure aside without looking at it (so as to remain blind to the subject's goal choice). Subjects are informed that this information will be useful for selecting future tasks, but that everyone who participates is asked to work first on the same task. (In this way, task perception and performance measures are based on a standardized task.)

We hope these measures are of use to you in your research and that you will keep us informed of your findings. We might also mention that we have developed corresponding measures for the social domain (tapping children's theories about their personality) which are available on request.

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TABLE 1

Type of Theory	Goal Preference	Confidence* in Intelligence or in Task Ability	Pattern
Entity theory	Performance goal	If high confidence	Mastery-Oriented behavior pattern
		If low confidence	Helpless behavior pattern
Incremental theory	Learning goal	If high or low confidence	Mastery-Oriented behavior pattern

* In some studies (e.g. Elliot & Dweck, 1988), confidence refers to confidence in task-specific ability rather than intelligence.

MEASURE 1

People have different ideas about their intelligence. Read each statement below and then circle the one mark that shows how much you agree with the statement.

You have a certain amount of intelligence and you really can't do much to change it.

strongly agree	agree	sort of agree	sort of disagree	disagree	strongly disagree
(1)	(2)	(3)	(4)	(5)	(6)

Your intelligence is something about you that you can't change very much.

strongly agree	agree	sort of agree	sort of disagree	disagree	strongly disagree
(1)	(2)	(3)	(4)	(5)	(6)

You can learn new things, but you can't really change your basic intelligence.

strongly agree	agree	sort of agree	sort of disagree	disagree	strongly disagree
(1)	(2)	(3)	(4)	(5)	(6)

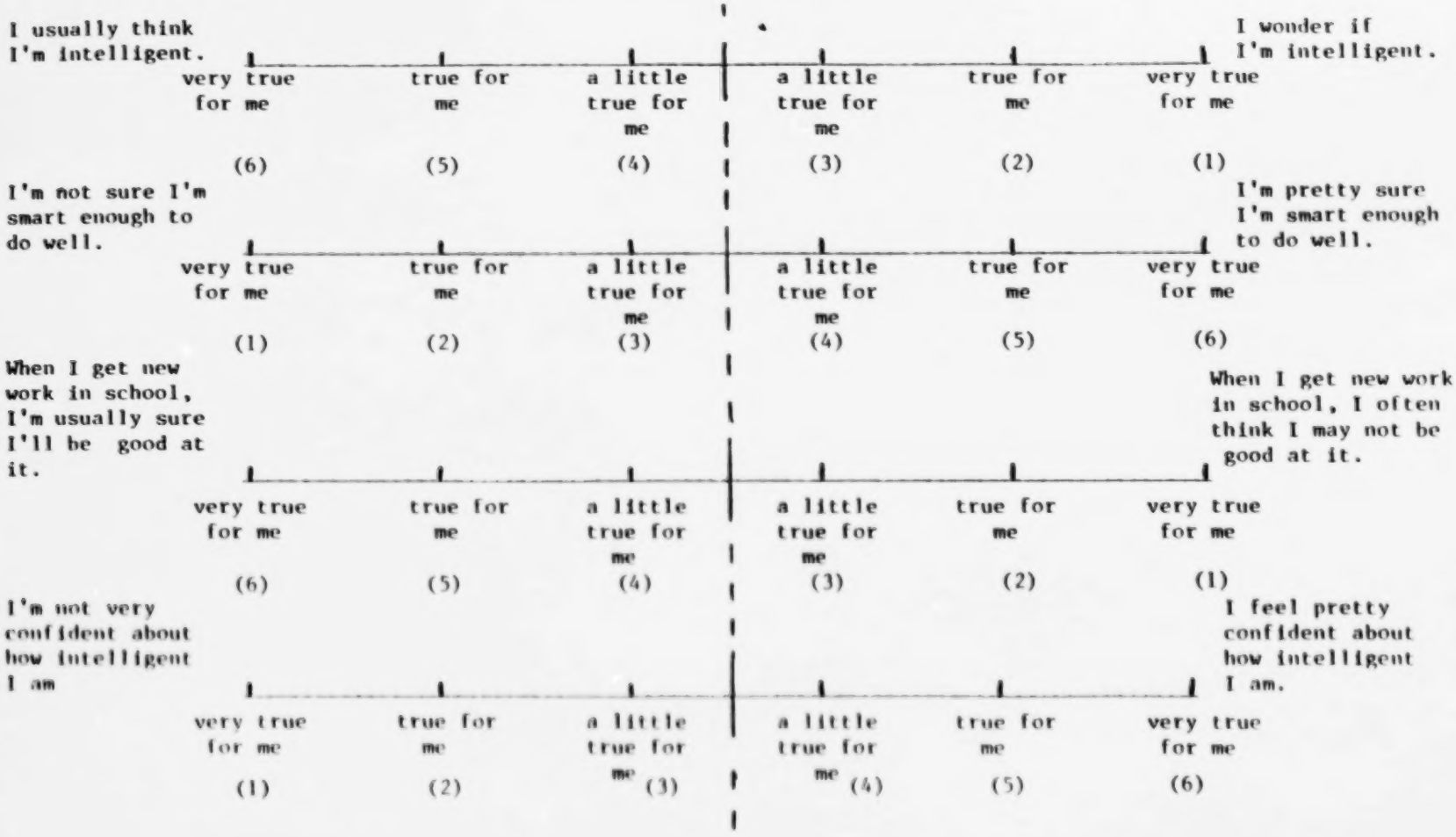
SUITABLE FOR AGE 10 AND OLDER.

SCORING IN PARENTHESES, LOW SCORES INDICATE ENTITY THEORY.

MEASURE 2

Below are four pairs of statements. Read each pair, and decide which is most true for you.

Then circle the mark that shows how true it is for you.


I usually think I'm intelligent.
I wonder if I'm intelligent.
very true for me
true for me
a little true for me
a little true for me
true for me
very true for me
(6) (5) (4) (3) (2) (1)
I'm not sure I'm smart enough to do well.
I'm pretty sure I'm smart enough to do well.
very true for me
true for me
a little true for me
a little true for me
true for me
very true for me
(1) (2) (3) (4) (5) (6)
When I get new work in school, I'm usually sure I'll be good at it.
When I get new work in school, I often think I may not be good at it.
very true for me
true for me
a little true for me
a little true for me
true for me
very true for me
(6) (5) (4) (3) (2) (1)
I'm not very confident about how intelligent I am
I feel pretty confident about how intelligent I am.
very true for me
true for me
a little true for me
a little true for me
true for me
very true for me
(1) (2) (3) (4) (5) (6)

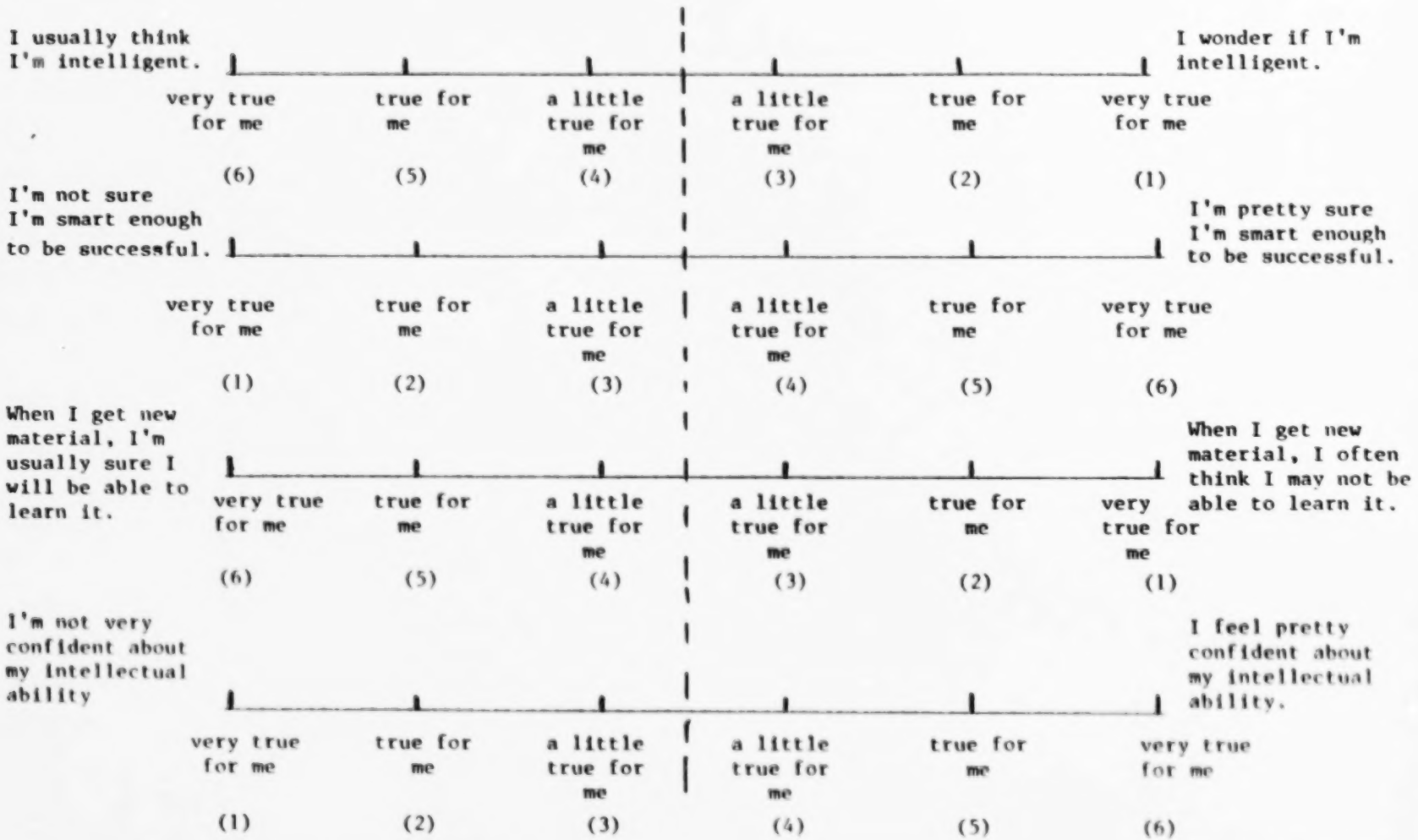
SUITABLE FOR AGES 9 - 12, UPPER ELEMENTARY AGE.

SCORING IN PARENTHESES, LOW SCORES INDICATE LOW CONFIDENCE.

MEASURE 3

Below are four pairs of statements. Read each pair, and decide which is most true for you.

Then circle the mark that shows how true it is for you.


I usually think I'm intelligent.
I wonder if I'm intelligent.
very true for me (6)
true for me (5)
a little true for me (4)
a little true for me (3)
true for me (2)
very true for me (1)
I'm not sure I'm smart enough to be successful.
I'm pretty sure I'm smart enough to be successful.
very true for me (1)
true for me (2)
a little true for me (3)
a little true for me (4)
true for me (5)
very true for me (6)
When I get new material, I'm usually sure I will be able to learn it.
When I get new material, I often think I may not be able to learn it.
very true for me (6)
true for me (5)
a little true for me (4)
a little true for me (3)
true for me (2)
very true for me (1)
I'm not very confident about my intellectual ability
I feel pretty confident about my intellectual ability.
very true for me (1)
true for me (2)
a little true for me (3)
a little true for me (4)
true for me (5)
very true for me (6)

SUITABLE FOR 12 YEARS AND OLDER.

SCORING IN PARENTHESES, LOW SCORES INDICATE LOW CONFIDENCE.

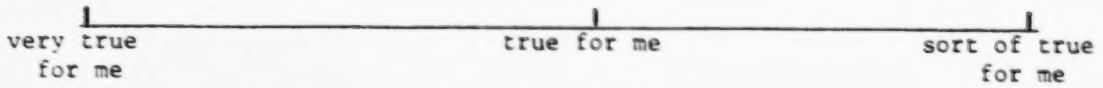
MEASURE 4

1. Check the sentence that is most true for you.

_____ I usually think I'm intelligent. (A)

_____ I wonder if I'm intelligent. (B)

Now, show how true the statement you chose is for you.

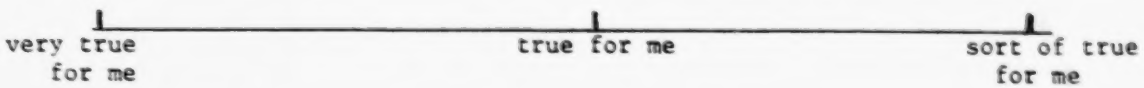


2. Check the sentence that is most true for you.

_____ I'm not sure I'm smart enough to be successful. (B)

_____ I'm pretty sure I'm smart enough to be successful. (A)

Now, show how true the statement you chose is for you.

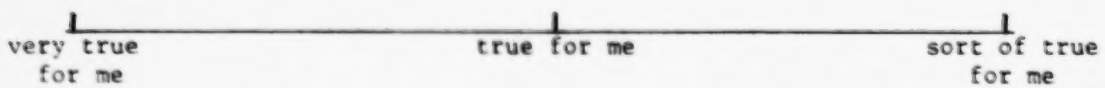


3. Check the sentence that is most true for you.

_____ When I get new material, I'm usually sure I will be able to learn it. (A)

_____ When I get new material, I often think I may not be able to learn it. (B)

Now, show how true the statement you chose is for you.

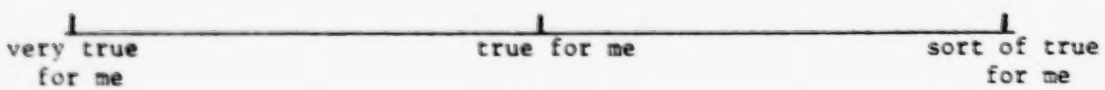


4. Check the sentence that is most true for you.

_____ I'm not very confident about my intellectual ability. (B)

_____ I feel pretty confident about my intellectual ability. (A)

Now, show how true the statement you chose is for you.



SUITABLE FOR 12 YEARS AND OLDER.

SCORING: IF THE (A) CHOICE IS SELECTED, "VERY TRUE" = 6, "TRUE" = 5, "SORT OF TRUE" = 4

IF THE (B) CHOICE IS SELECTED, "VERY TRUE" = 1, "TRUE" = 2, "SORT OF TRUE" = 3.

A LOW SCORE INDICATES LOW CONFIDENCE.

MEASURE 5

Put a check by the kind of problems you would like to work on.

I'd like:

(1)____Problems that aren't too hard, so I don't get many wrong.

(2)____Problems that I'll learn something from, even if they're so hard that I'll get a lot wrong.

(3)____Problems that are fairly easy so I'll do well.

(4)____Problems that are hard enough to show that I'm smart.

CHOICES (1), (3), and (4) ARE PERFORMANCE GOALS.

(1) AND (3) ARE EASY PERFORMANCE GOALS.

(4) IS A CHALLENGING PERFORMANCE GOAL.

CHOICE (2) IS A LEARNING GOAL.